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Electrochemical water splitting into hydrogen and oxygen is one of the most promising ways to produce clean hydrogen fuel using electricity generated from renewable energy sources such as solar energy and wind power. The overall water splitting efficiency is largely limited by the sluggish oxygen evolution reaction (OER). Nickel-based electrocatalysts have the potential to replace traditional ruthenium and iridium-based precious metal catalysts. Nickel phosphite ($Ni_{11}(HPO_3)_8(OH)_6$) is one kind of phosphorus-based inorganic materials which can be used as the electrocatalyst in OER[1]. Here, we successfully use microwave hydrothermal method to grow nickel phosphite on nickel foam. The effect of reaction time on the morphology and electrocatalytic activity is studied. Results show that nickel phosphite on the nickel foam has good catalytic activity toward OER in alkaline electrolyte (1M KOH).

Reference

1. Menezes, P. W. *et al.* A structurally versatile nickel phosphite acting as a robust bifunctional electrocatalyst for overall water splitting. *Energy Environ. Sci.* **11**, 1287–1298 (2018).